CLAIMS

1. A virion-constrained nanoparticle comprising a shell of a virion coat protein surrounding a nanoparticle of non-viral origin.

2. The virion-constrained nanoparticle according to claim 1, wherein said nanoparticle of non-viral origin comprises a material selected from the group consisting of organic, inorganic and organo-metallic materials.

3. The virion-constrained nanoparticle according to claim 2, wherein said nanoparticle of non-viral origin comprises an inorganic material.

4. The virion-constrained nanoparticle according to claim 2, wherein said nanoparticle of non-viral origin comprises an organic material.

5. The virion-constrained nanoparticle according to claim 2, wherein said nanoparticle of non-viral origin comprises an organo-metallic material.

6. The composition according to claim 1, wherein said virion coat protein is selected from the group consisting of eukaryotic, prokaryotic, fungal, algal and protozoan virion coat proteins.

7. The virion-constrained nanoparticle according to claim 6, wherein said virion coat protein is a eukaryotic virion coat protein.

8. The virion-constrained nanoparticle according to claim 7, wherein said virion coat protein is a plant virion coat protein.

9. The virion-constrained nanoparticle according to claim 8, wherein said virion coat protein is cowpea chlorotic mottle virus coat protein.

10. A process for the production of virion-constrained nanoparticles comprising:

a) providing an isolated and substantially pure coat protein(s) of a virion;

b) incubating said coat protein(s) in solution under conditions that permit re-assembly of a virion capsid;

c) mixing the re-assembled virion with one or more materials selected from the group consisting of organic, inorganic and organo-metallic materials, under conditions that entrap said material to provide virion-constrained nanoparticles surrounded by said virion coat protein; and

d) isolating the virion-constrained nanoparticles so produced.

11. The process according to claim 10, wherein the mixing in step c) is under conditions that provide for controlled gating.

12. The process according to claim 10, further comprising:

e) releasing the nanoparticle material through controlled gating.

13. A process for producing virion-constrained nanoparticles comprising:

a) providing an isolated and substantially pure coat protein(s) of a virion;

b) incubating said coat protein(s) in a solution comprising one or more materials selected from the group consisting of organic, inorganic and organo-metallic materials, under conditions that permit assembly of a virion and permit said virion to entrap said material and to provide virion-constrained nanoparticles surrounded by said virion coat protein; and

c) isolating the virion-constrained nanoparticles so produced.

14. The process according to claim 13, wherein the incubating in step b) is under conditions that provide for controlled gating.

15. The process according to claim 13, further comprising:

d) releasing the nanoparticle material through controlled gating.

16. A process for producing virion-constrained nanoparticles comprising:

a) providing isolated and substantially pure virions devoid of viral nucleic acid;

b) incubating said virions in a solution comprising one or more materials selected from the group consisting of organic, inorganic and organo-metallic materials, under conditions that permit said virion to entrap said material to provide virion-constrained nanoparticles surrounded by said virion; and

c) isolating the virion-constrained nanoparticles so produced.

17. The process according to claim 16, wherein the incubating in step b) is under conditions that provide for controlled gating.

18. The process according to claim 16, further comprising:

d) releasing the nanoparticle material through controlled gating.

19. The process according to claim 8, further comprising:

e) dis-assembling said virion capsids to provide free capsid subunits and free nanoparticles of core material; and

f) isolating the free core nanoparticles so produced.

20. The process according to claim 10, wherein said coat protein(s) of a virion is cowpea chlorotic mottle virus coat protein.